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THE CONSEIL DES ÉCOLES CATHOLIQUES DE LANGUE FRANÇAISE DE LA RÉGION D'OTTAWA-CARLETON

*Bus Routing Software Provides
Quick Payback—Major Savings
for French School Board*

In 1989, five separate school boards in the Ottawa area were amalgamated into a single Catholic French-language board. Today, the board delivers education to more than 14 000 students, some 72 per cent of whom must be bused from urban and rural areas. The task of transporting these students to and from the board's 44 schools quickly, efficiently and affordably has been met head-on using bus routing software that is widely available on the market today.



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Automating the system

When Stephen Taylor was hired as the board's transportation director, during the amalgamation exercise, he inherited a bus routing system that consisted of numerous paper maps. Routes were created manually, usually by private contractors. This resulted in high transportation costs and a system that did not always deliver students on time.

"The predicament faced by the board was quite clear," says Mr. Taylor. "The large community of students created a high demand for service, and the board had an increasingly limited supply of money to spend on transportation."

As an experienced transportation supervisor, Mr. Taylor knew that several routing software packages were available that could help trim the substantial costs inherent in running busing operations. After carefully researching

service



the various options, he recommended to the board a program designed to create optimum bus loads and route schedules.

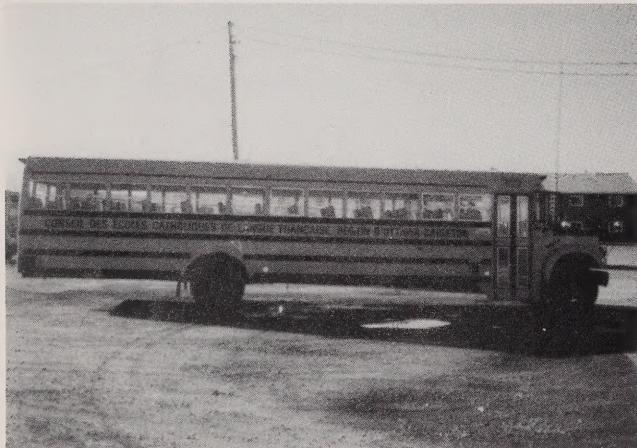
Once the software was installed, Mr. Taylor says, the board began an intensive process of entering data and an electronic map of the school district into the system.

Now fully operational, the system is extremely user friendly. Pull-down menus guide users through the data-entry process, and an online "help" function provides quick access to command explanations and other assistance. Technical support is also available from the software manufacturer, either by telephone or through a modem link. The latter allows the technical support personnel to view data online while giving assistance, which in turn helps minimize support costs.

Once a route is determined, the software automatically generates the turning instructions for the driver. The user can modify optimized routes and see the resulting impact on mileage, route times and cost. All of this can be done while the computer ensures that the routes stay within key parameters set by the board, such as bus capacity, arrival time and the student's maximum ride time.

How it works

According to Mr. Taylor, users must only specify the street address and grade level of a student, and the system immediately assigns the appropriate school, route, pick-up location and time. Several variables are considered by the routing program, including waiting times, one-way streets, detours and turning restrictions.



A coloured map of the school district shows routes and the locations of students' homes,

schools, and bus pick-up and drop-off sites.

Sections of the map can be printed for the drivers.

"Now that the initial data entry has been completed, the software

responds quickly to the frequent changes in user locations," explains

Mr. Taylor. "Staff simply enter the new address, and the system directs the best bus stop decision instantly."

The system advances each student one grade at the end of the school year and automatically assigns new transportation information to students who will be attending new schools within the board. This reduces annual data maintenance requirements by approximately 90 per cent.



Six-month payback

Implementation of the new bus routing system has been an unqualified success for the board.

"The cost of the software is small compared to the rapid payback," claims Mr. Taylor. "We spent \$16,000 for the package, \$3,000 for the map from Statistics Canada (a map is now included in the price of the package in most areas), and about \$2,000 in employee time during the training period. Our annual support contract costs \$890, and we did not have to buy any additional hardware; the software was simply installed on our PCs, which have 486 processors."

"This up-front expense has allowed reductions of 54 buses and seven office personnel since 1990. This means a reduction in our total budget of about 33 per cent. Our buses are actually driven more on an annual basis than they were before we acquired our routing technology, but our fuel expenses have decreased by an average of 21 per cent. This saves about half a million litres of fuel per year."

Mr. Taylor adds that the board staff enjoys working with the system because it is so easy to learn and use. He insists that the board would not return to the old method under any circumstances.

"In addition to saving money, we can produce reports for our trustees with only a short notice," Mr. Taylor points out. The reporting function allows management to adjust budgets and forecast expenditures more accurately, which in turn allows fuel-cost savings to be redirected toward other board activities instead of being tied up in reserves. This feature also enables the user to custom-design reports to address any area of operation.

Aside from the cost factor, fuel efficiency has another important benefit in that it reduces emissions of toxic pollutants and greenhouse gases into the atmosphere.

"I would strongly recommend routing software to anyone who is operating a bus fleet. In our case, the system paid for itself in less than six months."



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